Low-cost, self-paced t

Computer Based Training (CBT) programs are ea

by Rett Jesse
Manager of Technical Training
and Marketing Services
Bently Nevada Corporation

During the last thirty years, Bently Nevada has performed rotating machinery diagnostics at thousands of jobsites throughout the world, helping customers solve thousands of different problems. This experience is now available to you in self-paced training modules, so you and your employees can learn how to properly diagnose machine conditions at your worksite. This training is designed so you can work at your own pace.

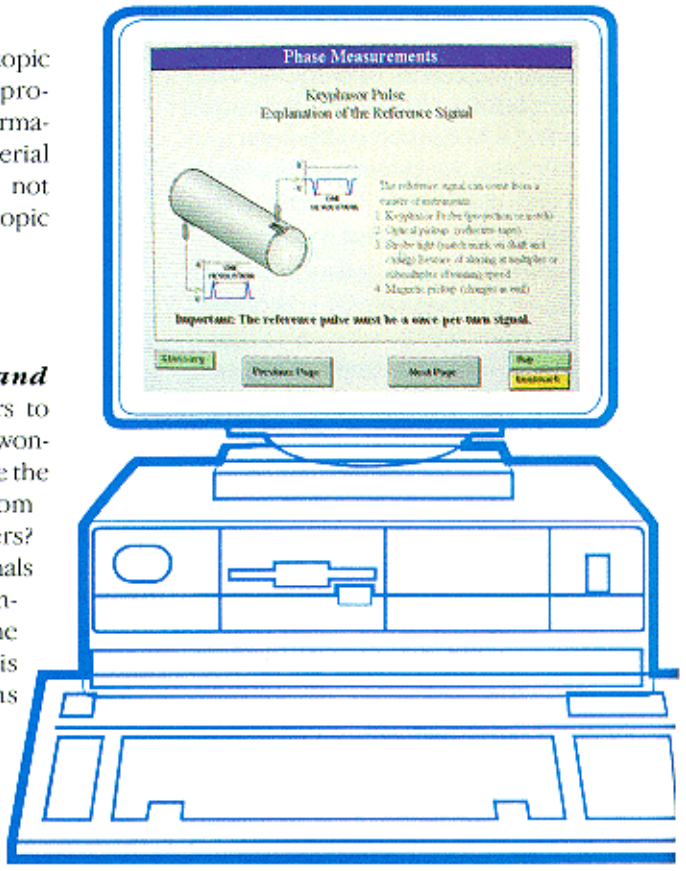
Computer-based training

Our Computer Based Training (CBT) programs are easy to install and use, and will run on most computers. The CBT programs can be used as reference material or as course materials complete with questions, tests, feedback loops, graphics, animation and text. The minimum requirements for running these CBT programs are a 386 computer running Microsoft Windows version 3.1 or higher, a monitor that supports 256 colors and 640x480 resolution, and sufficient hard disk space (usually less than 10 Megabytes). Each program has the following features:

- Each CBT combines graphics, animation, and text in an interesting learner-driven format.
- A summary version is available for those who pass the Pretest.
- Each page contains a "Map" button, which graphically shows your current location within the program.
- Each page of the program contains a "Glossary" button, which provides access to definitions.
- Clicking on a word or phrase written in underlined green characters displays the glossary definition for that word or phrase.
- Each information page contains a "Bookmark" button, which allows you to exit the program and return to the same page the next time the program is started.
- After you initially learn the material, you can then use the course material as a reference tool (random access, no quizzes).
- Many pages include a topic help button, which provides background information or auxiliary material closely related to, but not directly part of, the topic being discussed.

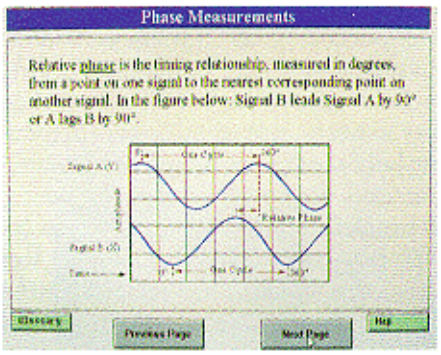
CBT material available

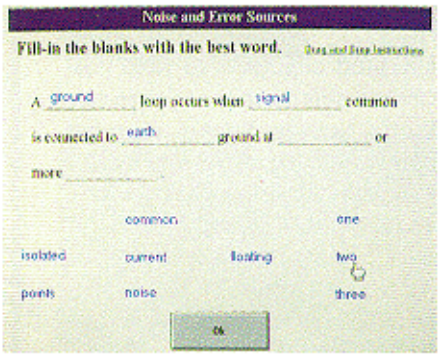
- ***Vibration Noise and Error Sources*** (3.5 hours to complete): Have you ever wondered how you can improve the quality of the signals from your vibration transducers? Why do some vibration signals seem much clearer, compared to other signals on the same machine train? This CBT thoroughly explains many of the pitfalls, to avoid or correct, to obtain the best data possible from your vibration transducers.
- ***Noise Reduction Techniques*** (2.5 hours to complete): Have you ever asked, "I have this noise problem, how do I eliminate or minimize it, so it no longer affects the quality of my vibration data?" This CBT program reviews many of the techniques available to reduce noise problems while retaining valid information.
- ***Measurement Conventions*** (2.0 hours to complete): This CBT explains how vibration transducer polarity affects a signal; how transducer location affects the interpretation of the data; how data

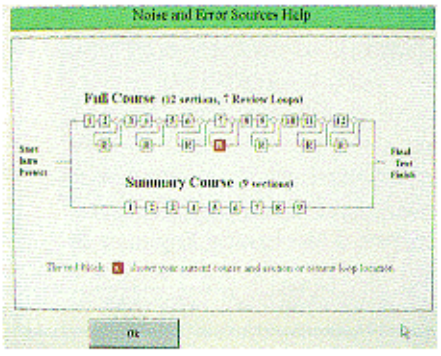


aining is now available!

to install and use, and will run on most computers.







acquisition equipment (an oscilloscope or ADRE® System) can be set up, so data is consistent from the various pieces of equipment, and how proper documentation facilitates machinery diagnostics.

- ***Phase Measurements*** (2.5 hours to complete): This CBT takes the mystery out of using phase measurements for machinery diagnostics. It explains how phase measurements are made and how phase measurements relate to rotor vibration response. Phase measurements are important for identifying where the rotor is heavy, the bending mode shape of the rotor, vibration precession direction, sources of malfunctions, and the normal operation of the machine.

- ***Vibration Transducer Operation*** (2.5 hours to complete): Do you wonder how vibration transducers (proximity probes, accelerometers, velocity transducers and Velomitor® transducers) work? How do they differ? What are their advantages and disadvantages? This program explains how transducers operate, what they measure, and their signal characteristics.

ADRE Case Histories

Using ADRE® for Windows™, you can practice identifying the root cause of machine malfunctions on machines that are similar to the machines you are responsible for. If you have ADRE for Windows software, you can load one of our case histories and generate the plot formats necessary to properly diagnose machinery problems. Each case history takes from 1.5 to 3.5 hours to analyze and complete. The case histories come complete with a machine diagram, a problem statement, operator information, transducer location, data file information, and the data files. The conclusion that our machinery diagnostic specialist reached, and the plots he used to reach it, are also included. The following case histories are available:

- Case History #1, 500 MW Turbine Generator
- Case History #2, Motor Driven Waterflood Pump
- Case History #5, 8 MW Cogen Turbine Generator
- Case History #6, Gas Pipeline Compressor
- Case History #7, 4000 Hp Induction Motor
- Case History #8, Gas Turbine Pipeline Compressor
- Case History #9, Gas Pipeline Compressor
- Case History #10, 125 MW Turbine Generator
- Case History #11, Motor/Gearbox/Compressor
- Case History #12, Induced Draft Fan
- Case History #13, 75 MW Turbine Generator
- Case History #14, 75 MW Turbine Generator
- Case History #15, Boiler Feed Pump Motor

Note: *you must have ADRE for Windows software to analyze the data contained in the above case histories.* ►

Self-paced manuals

Self-paced training can be in a written form as well. Some people learn best by reading and answering questions on key points. We have applied this idea to self-paced training manuals on the electronic systems used for machinery monitoring. This unique two-part training course introduces operators and technicians to the fundamental terminology and concepts necessary to operate Bently Nevada monitoring systems on rotating machinery.

Machinery Monitoring Systems Introduction
(2 hours to complete):

This self-paced study guide introduces many types of Bently Nevada Monitoring Systems. The major types of monitors (vibration, thrust, temperature, etc.) and their important functions are discussed. It is important for operators and technicians to know how to quickly and comfortably operate the front panels of machinery monitoring systems, as a first step in acting upon the information provided by these systems.

Monitoring System Fundamentals
(2 hours to complete):

Many of our customers ask about the different components that make up a complete machinery monitoring system. In this self-paced study guide, you will learn about the many types of transducers used in a complete machinery monitoring system and what types of monitors they are used with. As a prerequisite, you should have a fundamental knowledge of how to operate monitor front panels and how the transducer system interacts with the monitoring system.

We think you will find these training materials interesting and informative. They are a valuable addition to any training and reference library. To purchase these materials, use the order form attached to this issue of the Orbit, or contact your nearest Bently Nevada Sales representative. ■

New Houston Training Center set for early '95 opening

In early 1995, Bently Nevada will open its new Training Center at 8601 Almeda Genoa Road, Houston, Texas. The Training Center will provide three types of training: product training, machinery diagnostics training and customized training for companies that need specialized training tailored to its needs. Customized training will be held in the Self-Paced Computer Learning section of the Training Center. You will be able to come and go as your schedule dictates and to participate in state-of-the-art, computer-based training on a wide variety of topics. Bently Nevada instructors and hardware will be available, to assure that you will obtain the knowledge you require from the self-paced training. You can also practice your new skills by participating in hands-on workshops. The courses originally listed for Galveston, Texas on our 1995 Seminar Schedule in the December 1994 Orbit, will now be held in Houston.

The Training Center will incorporate the latest instruction methods, and courses will be taught by field-experienced Bently Nevada personnel. Future plans for the Training Center will include training via video conferencing, so you will be able to participate in training held at other locations. The Training Center is designed to meet your needs. We look forward to seeing you and listening to your comments, so we can make this Training Center a powerful tool to accomplish your company's learning needs. ■

In Memoriam...

It is with great regret that we announce the death of Mr. Dev Raj Sharma on 8 December after a brief illness. Mr. Sharma was Managing Director of Sherman International Private Ltd., Bently Nevada's sales and service representative in New Delhi, India.

After graduating with a Mechanical Engineering degree from Delhi University, Mr. Sharma joined the marketing division of Taylor Instruments Co, specializing in process instruments. Realizing the potential for marketing high quality process instruments, he established Sherman International in 1973 and was appointed a Bently Nevada representative for India in 1978.

During the past sixteen years, Mr. Sharma developed a team of dedicated engineers to help customers select the appropriate Bently Nevada System to meet their needs. He also established a team to commission, service and repair Bently Nevada systems in India. In 1993, Mr. Sharma opened a training center to teach customers how to effectively use Bently Nevada equipment.

Mr. Sharma will be remembered as a person who provided strong leadership and cared for the people who worked with him. He was well-liked and respected by all who knew him. We extend our condolences to his wife, Achla Sharma, and sons, Sushant and Sachin. Achla Sharma will continue as Managing Director, assisted by her son, Sushant, a Mechanical Engineer. ■